

Nuclear Regulatory Commission

§ 30.70

30.31, 30.32, 30.33, 30.37, 30.38, 30.39, 30.61,
30.62, 30.63, 30.64, 30.70, 30.71, and 30.72.

[57 FR 55072, Nov. 24, 1992]

SCHEDULES

§ 30.70 Schedule A—Exempt concentrations.

[See footnotes at end of this table]

Element (atomic number)	Isotope	Col. I	Col. II
		Gas concentration μCi/ml ¹	Liquid and solid concentration μCi/ ml ²
Antimony (51)	Sb 122 .....	.....	3×10^{-4}
	Sb 124 .....	.....	2×10^{-4}
	Sb 125 .....	.....	1×10^{-3}
Argon (18)	A 37	1×10^{-3}	5×10^{-3}
	A 41	4×10^{-7}	5×10^{-4}
Arsenic (33)	As 73 .....	.....	2×10^{-4}
	As 74 .....	.....	8×10^{-4}
	As 76 .....	.....	2×10^{-3}
	As 77 .....	.....	3×10^{-4}
Barium (56)	Ba 131 .....	.....	2×10^{-2}
	Ba 140 .....	.....	4×10^{-4}
Beryllium (4)	Be 7 .....	.....	3×10^{-3}
Bismuth (83)	Bi 206	4×10^{-7}	2×10^{-3}
Bromine (35)	Br 82 .....	.....	3×10^{-4}
Cadmium (48)	Cd 109 .....	.....	3×10^{-4}
	Cd 115m .....	.....	3×10^{-4}
	Cd 115 .....	.....	9×10^{-5}
Calcium (20)	Ca 45 .....	.....	5×10^{-4}
	Ca 47 .....	.....	8×10^{-3}
Carbon (6)	C 14	1×10^{-6}	9×10^{-4}
Cerium (58)	Ce 141 .....	.....	4×10^{-4}
	Ce 143 .....	.....	1×10^{-4}
	Ce 144 .....	.....	2×10^{-2}
Cesium (55)	Cs 131 .....	.....	6×10^{-2}
	Cs 134m .....	.....	9×10^{-5}
	Cs 134 .....	.....	4×10^{-3}
Chlorine (17)	Cl 38	9×10^{-7}	2×10^{-2}
Chromium (24)	Cr 51 .....	.....	5×10^{-3}
Cobalt (27)	Co 57 .....	.....	1×10^{-3}
	Co 58 .....	.....	5×10^{-4}
	Co 60 .....	.....	3×10^{-3}
Copper (29)	Cu 64 .....	.....	4×10^{-3}
Dysprosium (66)	Dy 165 .....	.....	4×10^{-4}
	Dy 166 .....	.....	9×10^{-4}
	Er 169 .....	.....	1×10^{-3}
Erbium (68)	Er 171 .....	.....	6×10^{-4}
	Eu 152	(T/2=9.2 Hrs.)	.....
Europium (63)	Eu 155 .....	.....	2×10^{-3}
	F 18	2×10^{-6}	8×10^{-3}
	Gd 153 .....	.....	2×10^{-3}
Fluorine (9)	Gd 159 .....	.....	8×10^{-4}
	Ga 72 .....	.....	4×10^{-4}
	Ge 71 .....	.....	2×10^{-2}
Germanium (32)	Au 196 .....	.....	2×10^{-3}
	Au 198 .....	.....	5×10^{-4}
	Au 199 .....	.....	2×10^{-3}
Gold (79)	Hf 181 .....	.....	7×10^{-4}
	H 3	5×10^{-6}	3×10^{-2}
	In 113m .....	.....	1×10^{-2}
Hafnium (72)	In 114m .....	.....	2×10^{-4}
	I 126	3×10^{-9}	2×10^{-5}
	I 131	3×10^{-9}	2×10^{-5}
Hydrogen (1)	I 132	8×10^{-8}	6×10^{-4}
	I 133	1×10^{-8}	7×10^{-5}
	I 134	2×10^{-7}	1×10^{-3}
Indium (49)	Ir 190	2×10^{-3}
	Ir 192	4×10^{-4}

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[See footnotes at end of this table]

Element (atomic number)	Isotope	Col. I	Col. II
		Gas concentration μCi/ml ¹	Liquid and solid concentration μCi/ ml ²
Iron (26)	Ir 194 .....	.....	3×10 ⁻⁴
	Fe 55 .....	.....	8×10 ⁻³
	Fe 59 .....	.....	6×10 ⁻⁴
Krypton (36)	Kr 85m	1×10 ⁻⁶ .	2×10 ⁻⁴
	Kr 85	3×10 ⁻⁶ .	4×10 ⁻³
Lanthanum (57)	La 140 .....	.....	1×10 ⁻³
Lead (82)	Pb 203 .....	.....	3×10 ⁻⁴
Lutetium (71)	Lu 177 .....	.....	1×10 ⁻³
Manganese (25)	Mn 52 .....	.....	1×10 ⁻³
	Mn 54 .....	.....	1×10 ⁻³
	Mn 56 .....	.....	1×10 ⁻³
Mercury (80)	Hg 197m .....	.....	2×10 ⁻³
	Hg 197 .....	.....	3×10 ⁻³
	Hg 203 .....	.....	2×10 ⁻⁴
Molybdenum (42)	Mo 99 .....	.....	2×10 ⁻³
Neodymium (60)	Nd 147 .....	.....	6×10 ⁻⁴
	Nd 149 .....	.....	3×10 ⁻³
Nickel (28)	Ni 65 .....	.....	1×10 ⁻³
Niobium (Columbium) (41)	Nb 95 .....	.....	1×10 ⁻³
	Nb 97 .....	.....	9×10 ⁻³
Osmium (76)	Os 185 .....	.....	7×10 ⁻⁴
	Os 191m .....	.....	3×10 ⁻²
	Os 191 .....	.....	2×10 ⁻³
	Os 193 .....	.....	6×10 ⁻⁴
Palladium (46)	Pd 103 .....	.....	3×10 ⁻³
	Pd 109 .....	.....	9×10 ⁻⁴
Phosphorus (15)	P 32 .....	.....	2×10 ⁻⁴
Platinum (78)	Pt 191 .....	.....	1×10 ⁻³
	Pt 193m .....	.....	1×10 ⁻²
	Pt 197m .....	.....	1×10 ⁻³
	Pt 197 .....	.....	3×10 ⁻³
Potassium (19)	K 42 .....	.....	Praseodymium (59)
	Pr 142 .....	.....	3×10 ⁻⁴
	Pr 143 .....	.....	5×10 ⁻⁴
Promethium (61)	Pm 147 .....	.....	2×10 ⁻³
	Pm 149 .....	.....	4×10 ⁻⁴
Rhenium (75)	Re 183 .....	.....	6×10 ⁻³
	Re 186 .....	.....	9×10 ⁻⁴
	Re 188 .....	.....	6×10 ⁻⁴
Rhodium (45)	Rh 103m .....	.....	1×10 ⁻¹
	Rh 105 .....	.....	1×10 ⁻³
Rubidium (37)	Rb 86 .....	.....	7×10 ⁻⁴
Ruthenium (44)	Ru 97 .....	.....	4×10 ⁻⁴
	Ru 103 .....	.....	8×10 ⁻⁴
	Ru 105 .....	.....	1×10 ⁻³
	Ru 106 .....	.....	1×10 ⁻⁴
Samarium (62)	Sm 153 .....	.....	8×10 ⁻⁴
Scandium (21)	Sc 46 .....	.....	4×10 ⁻⁴
	Sc 47 .....	.....	9×10 ⁻⁴
	Sc 48 .....	.....	3×10 ⁻⁴
Selenium (34)	Se 75 .....	.....	3×10 ⁻³
Silicon (14)	Si 31 .....	.....	9×10 ⁻³
Silver (47)	Ag 105 .....	.....	1×10 ⁻³
	Ag 110m .....	.....	3×10 ⁻⁴
	Ag 111 .....	.....	4×10 ⁻⁴
Sodium (11)	Na 24 .....	.....	2×10 ⁻³
Strontium (38)	Sr 85 .....	.....	1×10 ⁻⁴
	Sr 89 .....	.....	1×10 ⁻⁴
	Sr 91 .....	.....	7×10 ⁻⁴
	Sr 92 .....	.....	7×10 ⁻⁴
Sulfur (16)	S 35	9×10 ⁻⁸	6×10 ⁻⁴
Tantalum (73)	Ta 182 .....	.....	4×10 ⁻⁴
Technetium (43)	Tc 96m .....	.....	1×10 ⁻¹
	Tc 96 .....	.....	1×10 ⁻³
Tellurium (52)	Te 125m	2×10 ⁻³
	Te 127m	6×10 ⁻⁴
	Te 127	3×10 ⁻³
	Te 129m	3×10 ⁻⁴
	Te 131m	6×10 ⁻⁴

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[See footnotes at end of this table]

Element (atomic number)	Isotope	Col. I	Col. II
		Gas concentration μCi/ml ¹	Liquid and solid concentration μCi/ ml ²
Terbium (65)	Te 132 .....	.....	3×10 ⁻⁴
Terbium (65)	Tb 160 .....	.....	4×10 ⁻⁴
Thallium (81)	Tl 200 .....	.....	4×10 ⁻³
Thallium (81)	Tl 201 .....	.....	3×10 ⁻³
Thallium (81)	Tl 202 .....	.....	1×10 ⁻³
Thallium (81)	Tl 204 .....	.....	1×10 ⁻³
Thulium (69)	Tm 170 .....	.....	5×10 ⁻⁴
Thulium (69)	Tm 171 .....	.....	5×10 ⁻³
Tin (50)	Sn 113 .....	.....	9×10 ⁻⁴
Tin (50)	Sn 125 .....	.....	2×10 ⁻⁴
Tungsten (Wolfram) (74)	W 181 .....	.....	4×10 ⁻³
Tungsten (Wolfram) (74)	W 187 .....	.....	7×10 ⁻⁴
Vanadium (23)	V 48 .....	.....	3×10 ⁻⁴
Xenon (54)	Xe 131m	4×10 ⁻⁶.	.....
Xenon (54)	Xe 133	3×10 ⁻⁶.	.....
Xenon (54)	Xe 135	1×10 ⁻⁶.	.....
Ytterbium (70)	Yb 175 .....	.....	1×10 ⁻³
Yttrium (39)	Y 90 .....	.....	2×10 ⁻⁴
Yttrium (39)	Y 91m .....	.....	3×10 ⁻²
Yttrium (39)	Y 91 .....	.....	3×10 ⁻⁴
Yttrium (39)	Y 92 .....	.....	6×10 ⁻⁴
Yttrium (39)	Y 93 .....	.....	3×10 ⁻⁴
Zinc (30)	Zn 65 .....	.....	1×10 ⁻³
Zinc (30)	Zn 69m .....	.....	7×10 ⁻⁴
Zinc (30)	Zn 69 .....	.....	2×10 ⁻²
Zirconium (40)	Zr 95 .....	.....	6×10 ⁻⁴
Zirconium (40)	Zr 97 .....	.....	2×10 ⁻⁴
Beta and/or gamma emitting byproduct material not listed above with half-life less than 3 years.	.....	1×10 ⁻¹⁰	1×10 ⁻⁶

Footnotes to Schedule A:

¹Values are given only for those materials normally used as gases.

²μCi/gm for solids.

NOTE 1: Many radioisotopes disintegrate into isotopes which are also radioactive. In expressing the concentrations in Schedule A, the activity stated is that of the parent isotope and takes into account the daughters.

NOTE 2: For purposes of § 30.14 where there is involved a combination of isotopes, the limit for the combination should be derived as follows:

Determine for each isotope in the product the ratio between the concentration present in the product and the exempt concentration established in Schedule A for the specific isotope when not in combination. The sum of such ratios may not exceed "1" (i.e., unity).

Example:

$$\frac{\text{Concentration of Isotope A in Product}}{\text{Exempt concentration of Isotope A}} + \frac{\text{Concentration of Isotope B in Product}}{\text{Exempt concentration of Isotope B}} \leq 1$$

[30 FR 8185, June 26, 1965, as amended at 35 FR 3982, Mar. 3, 1970; 38 FR 29314, Oct. 24, 1973; 59 FR 5520, Feb. 7, 1994]

§ 30.71 Schedule B.

Byproduct material	Microcuries	Byproduct material	Microcuries
Antimony 122 (Sb 122)	100	Cadmium 115 (Cd 115)	100
Antimony 124 (Sb 124)	10	Calcium 45 (Ca 45)	10
Antimony 125 (Sb 125)	10	Calcium 47 (Ca 47)	10
Arsenic 73 (As 73)	100	Carbon 14 (C 14)	100
Arsenic 74 (As 74)	10	Cerium 141 (Ce 141)	100
Arsenic 76 (As 76)	10	Cerium 143 (Ce 143)	100
Arsenic 77 (As 77)	100	Cerium 144 (Ce 144)	1
Barium 131 (Ba 131)	10	Cesium 131 (Cs 131)	1,000
Barium 133 (Ba 133)	10	Cesium 134m (Cs 134m)	100
Barium 140 (Ba 140)	10	Cesium 134 (Cs 134)	1
Bismuth 210 (Bi 210)	10	Cesium 135 (Cs 135)	10
Bromine 82 (Br 82)	10	Cesium 136 (Cs 136)	10
Cadmium 109 (Cd 109)	10	Cesium 137 (Cs 137)	10
Cadmium 115m (Cd 115m)	10	Chlorine 36 (Cl 36)	10
		Chlorine 38 (Cl 38)	10
		Chromium 51 (Cr 51)	1,000
		Cobalt 58m (Co 58m)	10